

INTEGRATED FARE PAYMENT SYSTEM IN MULTI OPERATORS SINGLE MARKET PUBLIC BUS NETWORK

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Specially dedicated to

*To my beloved father, mother and sisters,
Mohamad Yusoff and all my friends,
my entire lecturers,
for the support and cares.*

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ABSTRACT

Several research have dealt with the need for the planning of an efficient public transportation system in Johor Bahru. However, these research did not look into the need for efficiency of public transportation from the perspective of the users' and operators' and the efficiency of the fare payment system among the stage bus operators. Studies have identified that fare integration is a way to enhance public bus system. Therefore the aim of this study is to determine if the fare integration would enhance public bus system in Johor Bahru. The objectives of the study were to review the current operational, network and market structures of public bus system in Johor Bahru, to determine users and operators acceptance level to the integrated fare payment system, to determine the appropriate methods of fare integration and to review the benefits of the integrated fare payment system. Seventy stage bus users and three bus operators were interviewed. The research hypotheses (alternative hypothesis H_1) stated the population parameter (age, education and income level) and travel characteristic (changes of bus line) have influence to the acceptance of the integrated fare payment system against the study hypotheses (null hypothesis H_0) that the population parameter and travel characteristic have no influence to the acceptance of the integrated fare payment system. Hypotheses test failed to reject the null hypotheses (for age, income level and changes of bus line) and accepted the alternative hypothesis for education level. For the operators, the research hypothesis was on the population proportion (P) where the alternative hypothesis $H_1: P > 0.5$ tested the operators willingness (willingness to share information and merge) against null hypothesis $H_0: P = 0.5$. Hypotheses test accepted the null hypothesis for both of the proportion hypotheses. The proportion test value ($P = 0.2776$) revealed there is inadequate evidence to conclude that operators are willing to share the information and merge ($P > \alpha$). The result is inconclusive as the study only evaluated three population parameter (age, education and income level) and one travel characteristic (changes of bus line). Further research in population and travel characteristics is needed for more complete understanding on users' and operators' acceptance level to the proposed integrated fare payment system in Johor Bahru.

ABSTRAK

Beberapa kajian telah mendapati keperluan untuk merancang pengangkutan awam yang efisien di Johor Bahru. Namun kajian tersebut tidak melihat keperluan pengangkutan awam yang efisien dari perspektif penumpang dan operator bas mahupun dari sudut tambang diantara operator bas. Kajian telah mengenalpasti aplikasi tambang bersepadu adalah salah satu kaedah untuk memperbaiki pengangkutan awam di Johor Bahru. Objektif kajian ini adalah untuk mengenalpasti operasi, rangkaian dan stuktur pasaran semasa pengangkutan awam di Johor Bahru, untuk menentukan tahap penerimaan penumpang dan operator terhadap sistem tiket bersepadu, untuk mengenalpasti kaedah tambang bersepadu yang bersesuaian, dan untuk mengenalpasti kebaikan penggunaan tambang bersepadu. Tujuh puluh penumpang dan tiga operator bas disoalselidik. Kajian hipotesis (hipotesis alternatif H_1) menyatakan ciri-ciri penduduk (umur, taraf pendidikan dan pendapatan) dan ciri-ciri perjalanan (pertukaran bas) mempunyai pengaruh kepada tahap penerimaan sistem tambang bersepadu bertentangan dengan hipotesis nol (hipotesis nol H_0) yang menyatakan ciri-ciri penduduk dan perjalanan tidak mempengaruhi tahap penerimaan sistem tambang bersepadu. Ujian hipotesis gagal menolak hipotesis nol (untuk umur, pendapatan dan pertukaran bas) dan menerima hipotesis kajian untuk taraf pendidikan. Untuk operator bas, hipotesis kajian adalah berdasarkan ujian perkadaran dimana $H_1: P > 0.5$ untuk mengetahui kesanggupan operator bas (kesanggupan berkongsi maklumat dan bergabung) bertentangan dengan hipotesis nol $H_0: P = 0.5$. Ujian hipotesis menerima hipotesis nol untuk kedua-dua ujian hipotesis perkadaran tersebut. Nilai perkadaran ($P = 0.2776$) mendedahkan ujian hipotesis tersebut kekurangan bukti untuk membuat kesimpulan bahawa operator bas sanggup untuk berkongsi maklumat dan bergabung ($P > \alpha$). Keputusan kajian ini tidak memberikan keputusan kerana skop kajian terhad kerana hanya merangkumi tiga ciri-ciri penduduk (umur, taraf pendidikan dan pendapatan) dan satu ciri-ciri perjalanan (pertukaran bas). Kajian lanjutan dalam ciri-ciri penduduk dan perjalanan diperlukan untuk lebih memahami tahap penerimaan penumpang dan operator bas terhadap sistem tiket bersepadu di Johor Bahru.